

**REMARKS**

Claims 1-9 and 22 are pending in the present application. By this Amendment, claims 1, 3, and 6-8 are amended, and claims 10-21 are cancelled without prejudice or disclaimer to their prosecution in a divisional application. Also, new claim 22 is added. Applicant respectfully requests withdrawal of the rejections, and allowance of the claims.

**I. Formalities**

Applicant thanks the Examiner for acknowledgement of foreign priority based on the foreign patent applications submitted on December 27-28, 1999. Applicant also thanks the Examiner for providing initialed copies of Form PTO-1449, indicating consideration of the references submitted in the Information Disclosure Statements filed on December 27, 2000, June 29, 2001 and March 1, 2002.

Additionally, Applicant affirms the election/restriction requirements, as set forth by the Examiner in the Office Action. More specifically, group I was provisionally elected by Applicant's representatives on February 12, 2002. Accordingly, the restricted claims have been cancelled without prejudice or disclaimer to their future prosecution in a divisional application.

**II. The claims are in proper condition**

Claims 1, 7 and 8 stand rejected due to alleged indefiniteness under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph. As shown in the foregoing amendments, Applicant has amended the claims to overcome the indefiniteness rejections. Therefore, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph.

**III. Claims 6-8 are novel**

Claims 6-8 stand rejected under 35 U.S.C 102(b) as being anticipated by Kawata et al. (U.S. Patent No. 5,890,395, hereafter “Kawata”). Applicant respectfully submits that Kawata fails to disclose all of the claimed combinations of features, as required for an anticipation rejection under §102. For at least the reasons herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

Applicant respectfully submits that the resin pipe claimed in claim 6 recites an integrally molded projection radially protruding outward from an opposite end of its outer surface to one end having a flange and a driving gear formed integrally therewith, to be demolded smoothly and to be produced efficiently.

On the other hand, Applicant respectfully submits that Kawata discloses at column 4, lines 33-55 that the substrate is formed as a unitary molding, using a material containing an electrically conductive resin as the main component, and a cylindrical tube and a driving flange for rotating the substrate. Further, Kawata discloses a driving flange having a through-hole for supporting a metallic shaft coaxially with the cylindrical tube, and a gear for transmitting rotational driving force, so that the driving flange is coaxially disposed at an end of the cylindrical tube to form the substrate.

The projection disclosed in Kawata is a driving flange portion 3a (see Fig. 1). A gear 4a for rotating the substrate is installed on an inner peripheral surface of the driving flange portion 3a. However, in the claimed invention, the projection is formed on an opposite end to one end having the flange and driving gear.

Applicant respectfully submits that Kawata fails to disclose all of the claimed combinations of features. For example, but not by way of limitation, Applicant respectfully submits that Kawata fails to disclose that the resin pipe has an integrally molded projection radially protruding outward from an opposite end of its outer surface to one end having a flange and a driving gear formed integrally therewith, as recited in independent claim 6.

Applicant notes that the projection disclosed in Kawata corresponds to the projection of the present invention. Since the use of the projection of Kawata et al. is a driving flange for rotating the substrate, it is submitted that Kawata does not disclose that the resin pipe can be demolded smoothly and can be produced efficiently by constructing the resin pipe, or having an integrally molded projection radially protruding outward from an opposite end of its outer surface to one end having the driving flange portion, as recited in claim 6.

Claims 7 and 8 depend from independent claim 6. Applicant respectfully submits that claims 7 and 8 are allowable for at least the same reasons as independent claim 6. Therefore, Applicant respectfully requests withdrawal of the rejections, and allowance of claim 6-8.

#### **IV. Claims 1-5 and 9 would not have been obvious**

Claims 1-2 and 4-5 stand rejected due to alleged obviousness under 35 U.S.C 103(a) over Bito et al (U.S.Patent No. 5,983,055, hereafter “Bito”). Also, claim 3 stands rejected under 35 U.S.C 103(a) over Bito in view of Nishimuro et al. (U.S.Patent No. 5,991,574, hereafter “Nishimuro”), and claim 9 stands rejected under §103(a) over Kawata in view of Nishimuro. Applicant respectfully submits that the Examiner’s proposed combinations of references fail to disclose or suggest claimed combination of features, as required for a prima facie obviousness

rejection. For at least the reasons herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

As described at application page 16, lines 29 to 35, according to the claimed invention, the polyamide resin having a high water absorption is blended with a resin having a water absorption no higher than 0.3% as recited in independent claim 1. The resulting alloy resin is used as the base material. The resulting resin compound has a low water absorption and is little subject to dimensional change in a high-temperature, high-humidity environment. More specifically, the alloy resin composed of the polyamide resin and the blending resin gives a molded product which has better dimensional stability than that obtained from the polyamide resin alone.

The foregoing is demonstrated by Referential Examples as shown in application Table 1, to which Applicant refers the Examiner. It is noted that the water absorption and dimensional stability of the molded product under a high-temperature high-humidity condition are greatly improved when the polyamide resin is blended with the blending resin having a low water absorption, as recited in claim 1.

Bito discloses a photosensitive element for electrophotography including a cylindrical supporting body made of a synthetic resin, the cylindrical supporting body having an outer diameter uniform in the axial direction thereof and an inner diameter gradually tapering in the axial direction, a driven member fixed to an end having a smaller inner diameter of the cylindrical supporting body, the driven member being rotated around the axis to be driven, and a photosensitive layer formed on the outer circumferential surface of the cylindrical supporting body. Bito also discloses at column 27, lines 57-61 that the size of the supporting body 2 can be,

for example, 270 to 280 mm in the entire length, 30 mm  $\phi$  in the outer diameter, 27 mm  $\phi$  in the inner diameter in the vicinity of the end 9, and 28 mm  $\phi$  in the inner diameter of the 12. However, Applicant respectfully submits that Bito fails to disclose an alloy resin of a blend of a polyamide resin with a resin having a water absorption no higher than 0.3%, as recited in claim 1.

Column 3, lines 4-9 of Nishimuro discloses that thermoplastic resin includes polycarbonate, polyethylene terephthalate, polybutylene terephthalate, polyamide (nylon 6, nylon 66 or the like), polyphenylene sulfide (PPS) and polyacetal. However, Applicant respectfully submits that Nishimuro fails to disclose or suggest that a polyamide resin is blended with a resin having a water absorption no higher than 0.3% (as recited in claim 1). Applicant notes that as shown in Table 1 of Nishimuro, all Examples in Nishimuro use nylon 66 or polyphenylene sulfide as a base resin alone. As described above, the claimed alloy resin that is composed of the polyamide resin and the blending resin gives a molded product having better dimensional stability than that obtained from the polyamide resin alone, as shown in application Table 1. Thus, Applicant respectfully submits that it is difficult to anticipate the claimed alloy resin from polyamide alone, as described in Nishimuro.

Accordingly, Applicant respectfully submits that the Examiner's proposed combination of Bito and Nishimuro fails to disclose or suggest the claimed resin pipe of the present invention, and more particularly, the claimed alloy resin and the effects thereof. As noted above, neither of the references, either alone or in combination, discloses or suggests the aforementioned claimed combination of features recited in claim 1. Therefore, Applicant respectfully submits that independent claim 1 is allowable.

Claims 2-5 depend from independent claim 1, and claim 9 depends from independent claim 6. Applicant respectfully submits that the dependent claims are allowable for at least the same reasons as the independent claims from which they depend. Therefore, Applicant respectfully requests withdrawal of the §103 rejection, and allowance of the claims.

**V. New claims**

As shown in the foregoing amendments, Applicant has added new claim 22. Applicant submits that the subject matter recited in new claim 22 is supported by the present specification at page 24, lines 16-19 and Fig. 3. Applicant respectfully submits that the art of record fails to disclose or suggest the features recited in new claim 22. Therefore, Applicant respectfully requests allowance of new claim 22.

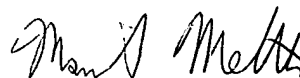
**VI. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

USSN 09/748,215  
Amendment Under 37 C.F.R. § 1.111

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

Date: December 5, 2002

**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**Please cancel claims 10-21.**

**The claims are amended as follows:**

1. (Amended) A resin pipe which is formed by injection molding from a [thermoplastic] resin or a resin compound [based on a thermoplastic resin], wherein said resin is an alloy resin of a blend of a polyamide resin with a resin having a water absorption no higher than 0.3%, and said resin pipe has a tapered inner surface to facilitate demolding such that the taper angle ( $\Theta$ ) satisfies the following [equation.]relationship:

$$0.5 \times 10^{-3} < \tan \Theta < 3.5 \times 10^{-3}.$$

3. (Amended) The resin pipe as defined in Claim 1, wherein said [which is formed from a]polyamide resin [compound containing at least one resin component]is selected from a polyamide [resin] obtained from metaxylylenediamine and adipic acid, and a polyamide resin obtained from  $\epsilon$ -caprolactam[, and an alloy resin obtained by blending a polyamide resin with a resin having a water absorption no higher than 0.3%].

6. (Amended) A resin pipe formed by injection molding from a thermoplastic resin or a resin compound based on a thermoplastic resin, said [rein]resin pipe having an integrally molded projection radially protruding outward from [one end of its outer surface] an opposite end of its outer surface to one end having a flange and a driving gear formed integrally therewith.



7. (Amended) The resin pipe as defined in Claim 6, wherein the projection is a [flange-like one]flange formed on the entire circumference of one end of the outer surface.

8. (Amended) The resin pipe as defined in Claim 6, which is a cylindrical base for the photosensitive drum [to be]that is mounted in electrophotographic apparatus or electrostatic recording apparatus.

**Please add new claim 22.**